

CLAIMS

We claim:

1. A method of classifying an activity state of a driver comprising:
providing an at least two-state activity classifier;
receiving sensor data relating to at least one vehicle operating condition; and
classifying the driver activity into one of at least two states based upon the sensor data, a first of the at least two states corresponding to a maneuver activity and a second of the at least two states corresponding to a non-maneuver activity.
2. The method of claim 1 wherein the classifying the driver activity into the first of the at least two states corresponding to the maneuver activity further comprises:
classifying the state of the driver activity as maneuver when engaged in an activity corresponding to one of a change in the position of a vehicle with respect to one or more vehicles or stationary objects, a parking maneuver, a freeway ingress, a freeway egress, a communication with an external party, an interaction with another occupant and a state of an entertainment device.
3. The method of claim 1 wherein the classifying the driver activity into the second of the at least two states corresponding to the non-maneuver activity further comprises:
classifying the state of the driver activity as non-maneuver when disengaged from an activity corresponding to one of a change in the position of a vehicle with respect to a one or more vehicles or stationary objects, a parking maneuver, a freeway ingress, a freeway egress, a communication with an external party, an interaction with another occupant, and a state of an entertainment device.
4. The method of claim 1 further comprising:
receiving a second sensor data relating to at least one of a condition of the driver, a condition of a passenger compartment, and a condition of a passenger.
5. The method of claim 1 wherein classifying the driver activity further comprises analyzing a position and a rate of change of the position of one of an

accelerator, a brake, a steering device, a turn signal selector, a clutch and a gear selector.

6. The method of claim 1 wherein the classifying the driver activity state further comprises classifying the driver activity state using one of instantaneous sensor data and prior sensor data.

7. The method of claim 1 wherein the classifying the driver activity state further comprises classifying the driver activity state using one of a linear function the sensor data and a non-linear function of the sensor data.

8. The method of claim 1, wherein the classifying the driver activity comprises classifying the driver activity using a statistical classifier.

9. The method of claim 8 wherein the classifying the driver activity using the statistical classifier further comprises using a C4.5, a RIPPER and a Quadratic classifier.

10. The method of claim 1 further comprising:
altering the presentation of an event in the vehicle when the classifying the activity state of the driver is maneuver.

11. The method of claim 10 wherein the event is one of a wireless communication, a vehicle condition alert, a navigation instruction, an email message, and an entertainment presentation.

12. A two-state classification apparatus for classifying an activity state of a driver comprising:
 - an input for receiving sensor data relating to at least one vehicle condition; and
 - a processor coupled to the input, wherein the processor analyzes the sensor data to determine a classification of the activity state of the driver into one of a maneuver and non-maneuver.
13. The classification apparatus of claim 12 further comprising an output for conveying a signal relating to the classification of the activity state of the driver.
14. The classification apparatus of claim 12 wherein processor implements the classification of the activity state of the driver using a statistical classifier.
15. The classification apparatus of claim 14 wherein the statistical classifier is one of a C4.5, a RIPPER and a Quadratic classifier.
16. The classification apparatus of claim 12 wherein the classification of non-maneuver enables an event in the vehicle.
17. The classification apparatus of claim 12 wherein the classification of maneuver delays an event in the vehicle.
18. The classification apparatus of claim 17 wherein the event is a notification of a change in state of an other apparatus in the vehicle.
19. The classification apparatus of claim 12 wherein the sensor data corresponds to one of an instrumentation data, a vehicle control data, a driver condition data, and a driver activity data.
20. The classification apparatus of claim 12 wherein the processor analyzes the sensor data corresponding to a driver identification.

21. The classification apparatus of claim 12 wherein the at least one vehicle condition is one of a vehicle mechanical condition, a vehicle passenger compartment condition, a driver state and a passenger state.
22. The classification apparatus of claim 12 wherein the at least one vehicle condition is one of an accelerator pedal position, a brake pedal position, a vehicle speed, a turn signal state, and a steering wheel position.
23. The classification apparatus of claim 12 wherein the classification corresponds to a current condition of the sensor data.
24. The classification apparatus of claim 12 wherein the classification corresponds to a past condition of the sensor data.

25. A vehicle arranged and constructed to use a classification of an activity state of a driver comprising:

a classification apparatus for providing a signal corresponding to one of maneuver and non-maneuver, the signal based on a sensor data related to at least one operational condition; and

a device operable to use the signal for determining a timing for notifying the driver of an event.

26. The vehicle of claim 25 wherein when the signal corresponds to non-maneuver and the timing is immediate for notifying the driver of the event.

27. The vehicle of claim 25 wherein when the signal corresponds to maneuver and the timing is delayed for notifying the driver of the event.

28. The vehicle of claim 25 wherein the device is a wireless communication device.

29. The vehicle of claim 25 wherein the operational condition is one of a instrumentation condition, a vehicle control condition, an entertainment device condition, a driver condition, and a driver activity condition.